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BULLETIN 72. **FEBRUARY, 1891.**

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MICHIGAN

AGRICULTURAL EXPERIMENT STATION,

STATE AGRICULTURAL COLLEGE.

BOTANICAL DEPARTMENT.

SIX WORST WEEDS.

BY W. J. BEAL.

The Bulletins of this Station will be sent free to all newspapers in the State and to such individuals interested in farming as may request it. Address all applications to the Secretary, Agricultural College, Michigan.

MICHIGAN AGRICULTURAL EXPERIMENT STATION.

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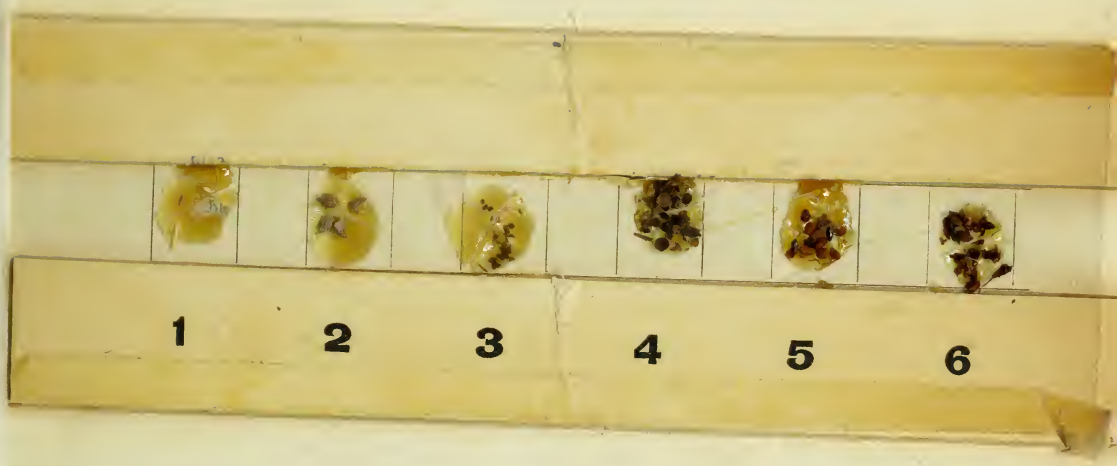
PRESERVE FOR FUTURE USE.

SEEDS OF SIX OF OUR WORST WEEDS.



No. 1. Canada Thistle.

No. 2. Red Root; wheat thief.

No. 3. Moth Mullein.

No. 4. Toad Flax; butter and eggs.

No. 5. Ribgrass; narrow-leaved plantain in clover seed.

No. 6. Narrow Dock.

SIX WORST WEEDS.

Some of our most troublesome weeds are natives of the neighborhoods in which they are found, but most of them have been introduced from other portions of our own country or from foreign countries. The seeds of most weeds find their way on to a farm nicely mixed with seeds of grasses, grains and clovers, which are drilled in or sowed broadcast on fertile soil, where they are afforded an excellent opportunity to grow and multiply. In some instances weeds are introduced as a part of the packing or straw employed to protect castings, marble, crockery or fruit trees. Such foreign packing should always be burned at once.

By these processes above noticed the older the country the more troublesome weeds it will have, as every new intruder usually comes to stay. In most cases a weed becomes well established before it is discovered and the inquiry comes, "What is it and how can I get rid of it?"

Here are samples of seeds of six sorts which have a bad reputation and it will be best to watch them. Most of them are already pretty well known by some of our farmers. They are not indigenous, but have all been introduced from Europe. The following rules are worth observing:

1. Carefully examine seeds before sowing and see that they are clean, and thus prevent the introduction of weeds.
2. Keep a sharp lookout and exterminate the few first intruders before they spread themselves.
3. Usually, as in all the six cases here referred to, perhaps excepting the Canada thistle, one or more so-called hoed crops, like corn, potatoes or beans, most thoroughly tended throughout a single growing season or for two seasons in succession will be a good practice. There is no royal way in which to kill weeds.

NO. 1.—CANADA THISTLE. (*Cnicus arvensis Hoffm.*)

Although usually known as Canada thistle the plant is not native to Canada, nor to any part of America, but was introduced in an early day. It is one of the very worst and most universally known of our weeds. Study the seeds here attached carefully and then avoid sowing others like them. Most of these seeds on this card have each been bored out by a small insect, most likely a little fly, *Trypeta florescentiæ Loew.*

A plant spreads extensively by means of its long white underground stems or root-stocks, as large as a lead pencil and sometimes reaching two feet or more below the surface. These contain considerable nourishment

which feeds the buds enabling them to develop into plants with green tops above the surface of the ground.

Some of my readers may know of better ways of extermination than those given below, but these modes have been well tried and found successful. J. S. Woodward, secretary of the New York agricultural society, is well known as a reliable man of unusual tact and sagacity. He says, "I kill the thistles without the loss of a crop as follows: Have the land rich, if possible; at least have it well seeded to clover and by top dressing with plaster, ashes, or some means, get as good growth to the clover as possible. As soon as the clover is in full bloom, and here and there a thistle shows a blossom, mow and make the crop, thistles and all, into hay. After mowing apply a little plaster to quickly start the growth of clover. You will find this to come much quicker than the thistles. As soon as the clover has a good start, from July 20 to August 5, plow down, being careful to plow all the land and to fully cover all growth. Then roll and harrow at once so as to cover every thistle. But few thistles will ever show themselves after this and they will look pale and weak. When they do show cultivate thoroughly with a cultivator having broad, sharp teeth so as to cut every one off under the ground. In two days go over with a sharp hoe and cut off any that may have escaped the cultivator. Watch the thistles and keep using the hoe and cultivator until freezing weather. By plowing this field just before freezing up you will have the land in the finest condition for a spring crop. This plan not only kills thistles but other weeds. It is much better than a summer-follow and without the loss of any crop."

In a recent bulletin Dr. T. J. Burrill, of the agricultural experiment station of Illinois, says: "From the experience obtained (detailed in the bulletin), and from other information, we may formulate the best method of exterminating these pests when in full possession of tillable ground as follows:

"1. Cut the thistles when in full bloom (July) as close to the ground as possible.

"2. Plow about three inches deep and sow millet or Hungarian grass, seeding heavily, harrow. This may follow the preceding at once or after some two weeks' delay.

"3. In September plow under the crop or save it for hay, as desired. At all events plow and seed liberally with rye.

"4. Plow under the rye in May and seed again with millet or Hungarian grass, or plant to some hoed crop (corn) and give the most thorough cultivation, with continued searching for and destruction of every remaining thistle.

"5. Continue the clean cultivation and sharp lookout for thistles another year."

He adds: "The cultivation need not be deep at any time. Cutting the thistle stems three inches below the surface is as effective as at any greater depth and labor is saved. From repeatedly cutting off the aerial parts the underground portions are sure to die of exhaustion."

In killing a patch of eight square rods in sod he relates the following: "Beginning June 17 the plants were cut off with a hoe at or just beneath the surface of the ground. This was carefully done each week until September 23 of the same year, 1889. During the summer of 1890 the spot was similarly examined and treated the first of each month (once a month only) from May to November. The number of thistles found and cut off

each time were in order as follows: 1, 1, 3, 1, 0, 1, 0. These eight square rods in sod were killed at a cost of fifty cents per rod."

NO. 2.—RED ROOT, WHEAT THIEF, CORN GROMWELL. (*Lithospermum arvense, L.*)

This is a rough, hoary, erect or straggling plant, six to twelve inches or more high with narrow leaves and inconspicuous white flowers. It is a great pest in wheat because of the room it occupies and because the hard stems mature and scatter seeds before the wheat is cut or while the harvester is cutting it. Finding this weed in his wheat field, many a farmer has pursued a wise course in spending considerable time while the wheat was yet small in hand-weeding his field.

The three precautions for extermination previously mentioned are applicable to red root.

NO. 3.—MOTH MULLEIN. (*Verbascum Blattaria, L.*)

Lower leaves of young plants smooth, somewhat resembling those of the dandelion, spreading out each way flat on the ground. In summer a single slightly branching, almost leafless stem, two to three feet high, bears a few flowers each day much like those of the common woolly-leaved mullein, only the flowers have violet woolly hairs in the center. The plant dies after seeding. Cultivation of the land with hoed crops and digging the scattering plants before seeding are the methods of extermination.

NO. 4.—TOAD-FLAX, BUTTER-AND-EGGS. RAMSTED. (*Linaria vulgaris, L.*)

A rather slender, erect, smooth, branching light green plant from one to three feet high; leaves narrow, crowded, many of them almost grass-like; flowers light and dark yellow, an inch long, bearing a spur. This plant is not only reproduced by its abundance of small, light-winged seeds, but when once established spreads rapidly by long, slender, white underground stems or root-stocks, much after the manner of quick or couch or quack grass. It is especially troublesome in sandy or mellow soils.

Not far from the Agricultural College, twenty years ago, was a single patch in the roadside, not more than a rod square; now the weed is abundant in many places along that road and other roads, and has established itself in generous patches on six or seven or more different farms, and on some of them it makes quite a prominent display, especially in old meadows and pastures. The owners of these farms are just beginning to realize that they have a strong foe to contend with. Thorough cultivation with some suitable crop is the best and easiest remedy.

NO. 5.—RIB GRASS. NARROW-LEAVED PLANTAIN. (*Plantago lanceolota, L.*)

This is sometimes also known as *ripplegrass, English plantain, buckhorn plaintain, ribwort.* Seeds of this plant mixed with those of red clover were sent out with bulletin No. 56, about one year ago. Owing to the fact that it is becoming very common in the fields in many portions of our State it has been thought best to notice it again and send another small sample of seeds as they appear mixed with those of clover. A package of the seed was sown last spring, the plantain making rather a greater display than the clover, especially toward the close of summer when it blossomed and seeded freely. The leaves are narrow and unless much crowded, spread out flat close to the ground like those of the dandelion, and

thus tend to choke out the clover or the grasses. It is difficult to separate the seeds of this plantain from those of the red clover—in fact I know of no way by which they can be readily separated. Observe the general precautions enumerated above.

NO. 6.—NARROW DOCK. CURLED DOCK. (*Rumex crispas, L.*)

There is another dock with broader leaves, in many places almost as common, and two others less frequently met with—all unwelcome emigrants from Europe. Narrow dock must by this time be very generally known by Michigan farmers. The stem and leaves are smooth, the stalk nearly simple, erect, two to four feet high; the leaves lanceolate, with strongly wavy margins. The yellow, slender tap-root is often a foot or more long, living from year to year. If mowed once, or even twice, during the season new stems and leaves spring from the root near the surface of the ground and begin to prepare for seeding the next year. To pull dock from meadows and waste places, wait till the stalks have run up to full height, but have not yet gone to seed, then thrust a spade or stout spud deeply into the soil in a perpendicular position within two or three inches of the plant. While prying a little with the spade lift the plant with the other hand, removing root and branch. The seeds of wild buckwheat, a common vine in fields and waste places, and those of smartweed, sheep-sorrel and several other allied plants have seeds which resemble those of narrow dock more or less closely.

W. J. BEAL, *Botanist.*

EXPERIMENT STATION,
AGRICULTURAL COLLEGE, MICH.,
February 15, 1891.

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